

Claims

1. Method of connection management in a mobile communications system, which is suitable for packet switched data transmission and which includes at least one serving node (SGSN), at least one radio network sub-
 5 system (RNS), a logical connection between the serving node and the radio network subsystem, and mobile stations (MS), in which mobile communications system the mobile station (MS) has a logical connection with the serving node (SGSN), characterized in that
 a logical connection is released between the serving node (SGSN)
 10 and the radio network subsystem (RNS) so that the logical connection remains between the serving node (SGSN) and the mobile station (MS), and
 the logical connection is reconnected between the serving node (SGSN) and the radio network subsystem (RNS) when transmission of user data begins.
- 15 2. Method as defined in claim 1, characterized in that the logical connection is released between the serving node (SGSN) and the radio network subsystem (RNS), when mobile communications on the connection have been idle for a pre-established time.
3. Method as defined in claim 2, characterized in that the
 20 pre-established time is set for the connection based on the service class.
4. Method as defined in claim 1, characterized in that the logical connection is released between the serving node (SGSN) and the radio network subsystem (RNS), when a shortage of resources occurs on this transmission distance and the connection is idle.
- 25 5. Method as defined in claim 1, characterized in that information on release of the logical connection is signalled between the serving node (SGSN) and the mobile station (MS).
6. Method as defined in claim 1 or 5, characterized in that
 30 information on the need for reconnection of the logical connection is signalled between the serving node (SGSN) and the mobile station (MS).
7. Method as defined in claim 1, characterized in that
 35 release of the logical connection between the serving node (SGSN) and the radio network subsystem (RNS) is prevented, when some unit in the mobile communications system has such user data, which is intended for relaying over this connection.

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8. Method as defined in any claim 1-3, characterized in that the connection of the mobility management protocol (MM) is released between the serving node (SGSN) and the radio network subsystem (RNS), so that the connection of the upper level connection protocol (SM) between
5 the serving node (SGSN) and the mobile station (MS) remains.

9. Mobile communications system, which is suitable for packet-switched data transmission and which includes at least one serving node (SGSN), at least one radio network subsystem (RNS), a logical connection between the serving node and the radio network subsystem and mobile
10 stations (MS), in which mobile communications system the mobile stations (MS) have a logical connection with the serving node (SGSN), characterized in that the mobile communications system includes

connection management equipment for releasing the logical connection between the serving node (SGSN) and the radio network subsystem (RNS) during non-activity of the connection and for reconnecting this logical
15 connection, when traffic activity starts.

10. Mobile communications system as defined in claim 9, characterized in that the connection management equipment includes monitoring equipment (91) for identifying activity and non-activity
20 of the user data traffic on the mobile station's communication connection, at least one timer (93) for measuring an uninterrupted non-activity period in the relaying of user data, and

state control equipment (95) for releasing the logical connection between the serving node (SGSN) and the radio network subsystem (RNS),
25 when a pre-established time has passed as measured by the timer, and for reconnecting the logical connection between the serving node (SGSN) and the radio network subsystem (RNS), when the relaying of user data resumes.

11. Mobile communications system as defined in claim 10, characterized in that an operation and management system (O&M) controls
30 setting of the timer (93).

12. Mobile communications system as defined in claim 10 or 11, characterized in that the timer's setting depends on the service class.

13. Mobile communications system as defined in claim 10 or 11,
35 characterized in that the connection management equipment also includes signalling equipment (97) for signalling of the release and recon-

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14. Mobile communications system as defined in claim 9, c h a r -
a c t e r i z e d in that the connection management equipment includes

resources monitoring equipment (102) for monitoring the degree of reservation of the connection identifiers of connections between the serving node (SGSN) and the radio network subsystem (RNS), and

state control equipment (105) for releasing the logical connection between the serving node (SGSN) and the radio network subsystem (RNS), when there is a shortage of connection identifiers and the connection is idle, and for reconnecting the logical connection between the serving node (SGSN) and the radio network subsystem (RNS), when relaying of user data resumes.

15. Mobile communications system as defined in claim 14, c h a r a c t e r i z e d in that the connection management equipment also includes signalling equipment (107) for signalling of release and reconnection of the logical connection between the serving node (SGSN) and the mobile station (MS).